Stanley Consultants INC.

MEETING NOTES

Date: August 28, 2013

Place: Stanley Consultants Office
Las Vegas, Nevada

Project/Purpose: NV Energy - Reid Gardner Station
Implementation of Administrative Order on Consent (AOC)
Conceptual Site Model Visualization Workshop

Attendees: Alison Oakley/NDEP
Brad Cross/Arcadis
John Kivett/Arcadis
Tony Garcia/NV Energy
Jason Reed/NV Energy
Mike Rojo/NV Energy
Matt Johns/CH2M Hill
Becky Svatos/Stanley Consultants
Africa Espina/Stanley Consultants
Jonathan Sarich/Stanley Consultants
Cam Conrad/Stanley Consultants
Todd Knause/Stanley Consultants

Notes By: Jonathan Sarich/Stanley Consultants

A meeting was held between NV Energy (NVE) and Nevada Division of Environmental Protection (NDEP) representatives on August 28, 2013. The primary purpose of this meeting was to conduct a workshop presenting the development of a Preliminary three-dimensional (3D) Conceptual Site Model (CSM). The status of the implementation of the AOC signed by NVE and NDEP on February 22, 2008 was also discussed. It was agreed upon by the attendees that this CSM workshop qualifies for the 3rd quarter AOC meeting. Topics discussed during the meeting are summarized below.

Preliminary Conceptual Site Model (CSM) – The purpose of this workshop was to present the Preliminary CSM through visualization aids and to discuss potential data gaps. Prior to the workshop, the NDEP was given two cross-sections through the Station which were developed from a 3D visualization, a table of contents and references used to create the 3D visualization, and Stiff diagrams of the groundwater quality beneath and the surface water quality flowing through the Station.

Visualization - The Preliminary CSM visualization utilizes the site-specific data for the Station that is currently available into a 3D representation. NVE/Stanley Consultants discussed how the model was structured, using the resources listed in the table of contents as a guide. Each layer in the table of contents was explained along with questions regarding the source of the data. Surface elevations were brought into the CSM from data collected by aerial photogrammetry as well historical aerial information. Information was presented on the approximate two foot discrepancy between using the 1927 and 1983 survey datum on determining accurate elevations of current and historical site features. The subsequent discussion concluded that the best

available information is being used and the margin of error is acceptable under the circumstances. The Muddy River depth came from historic cross sections developed by FEMA. The limitations of the FEMA data lead into a discussion regarding the need for current Muddy River cross sections. NDEP agreed that more transects would be needed to better illustrate the Muddy River's profile and flow characteristics. Current and historical pond features such as bottoms and surfaces, liners, slurry and cut-off walls, and groundwater recovery trenches were incorporated into the model through the use of interpretation of record drawings. A discussion followed regarding the different triangulation methods available for the computer software to use and the reasons why the spline method was selected to interpolate between available data points and its similarities to the Surfer® program used to draw groundwater contours. This method was also used show the diesel plume, groundwater/surface water interaction, and top of the Muddy Creek Formation, conglomerate, and the clay layers. Arcadis cautioned the reliance of measured product thicknesses in wells to characterize the extent of diesel plume as it is not necessarily representative of sub-surface conditions. The results of the upcoming Petroleum Area Characterization using Laser Induced Fluorescence should prove more accurate.

At the conclusion of the 3D Visualization of the Preliminary CSM discussion, NDEP and Arcadis concurred with NVE that data gaps exist throughout the model and would need to be addressed in future work plans. Some of the data gaps discussed included: Muddy River flow characterization, depth of ash fill under Unit 4 coal pile, geologic interpretation between borings, potential faults perpendicular to the Muddy River, preferential pathways and receptors, and screen intervals for any nearby dewatering, irrigation and domestic wells. In particular, ARCADIS stated that during their review of the CPT logs they noticed a step-down parallel to the railroad and then near Pond F/G, indicating potential faulting. NVE noted this could be due to differences in the survey benchmark for the CPT and boring logs. NDEP agreed the 3D Visualization of the Preliminary CSM would remain a work in progress and data gathered from the implementation of future work plans would be incorporated into the model and presented at future workshops. NDEP requested future 3D Visualizations should include a TDS plume based on data collected from additional well clusters installed during the implementation of future work plan.

Cross Sections – Two geologic cross sections were presented to NDEP, CSM1 and CSM2. Alignments of the cross sections were discussed and approved at the previous AOC meeting. The CSM1 cross section was developed by using soil boring and well data within 15 feet from the cross section line. The alignment of CSM1 starts at the raw water ponds and goes through the diesel product plume in the plant area and then down through the Muddy River. NDEP suggested that the legend be reconfigured to show the lithology and also requested that the cross sections be drawn with a vertical exaggeration no greater than 1 to 10. They suggested that large, poster-size, plates be used in report deliverables. NDEP and NVE agreed cross section CSM1 shows data gaps near the raw water ponds, underneath the coal piles, and around the Muddy River. Arcadis suggested investigating the location of underground utilities and foundations to possibly explain the spacing of groundwater contours in the plant area. Further investigation of the groundwater surface in the vicinity of soil boring DB-35 and monitoring well IMW-14 was also recomended.

The CSM2 cross section starts at Pond 4C-2 and goes through the ponds 4C-1 and 4B-1 to former pond D and then turns east and continues through ponds E-1 and E-2, former pond G, and through the Muddy River. Data gaps are present along the landfill haul road and near the Muddy River. NDEP and Arcadis suggested that possible faults and the slurry walls could also have an effect on groundwater flow. NDEP and Arcadis requested CPT profiles should be added to the cross-section, well screen symbology should be moved outside the soil boring lithology, and an interpretation of the geology between borings presented.

Stiff Diagrams – Prior to the workshop, NDEP was given individual Stiff diagrams for wells in and around the Unit 4 Ponds and Coal Pile, and a site figure showing diagrams of the groundwater and surface quality from selected locations at the Reid Gardner Station. The purpose of the Stiff diagrams was to show how the chemical composition of groundwater and surface water changes across the site. Based on the diagrams, the groundwater chemistry differs between the mesa, flood plain, and areas north and east of the plant. The Stiff diagrams of the Muddy River show no recognizable impact from the adjacent groundwater. Following the Stiff diagram presentation, there was a discussion of the potential reasons for the error in some cation/ion balance that were shown to be greater than 5%. NVE/Stanley Consultants commented they are currently in discussions with the lab as to why such a large variance is occurring. One of the potential sources of error discussed was the lack of alkalinity data for all the sampling location. Arcadis commented that another source of variance could be in the conversion of units from mg/L to meq/L. NDEP added that without all the alkalinity data it is difficult to fully ascertain the differences in water types. Alkalinity was sampled this quarter and the Stiff diagrams will be updated once that data is available from the laboratory as requested by NDEP. NVE and Stanley Consultants mentioned they were conducting literature research for Stiff diagrams of groundwater and surface water from off-site locations.

Preliminary CSM Report – NDEP stated a formal deliverable is not needed at this time. The CSM will be a working model and NDEP will receive updates periodically when new information has been added to the model.

Pond F Solids Report – NDEP is currently reviewing this report.

Diesel remediation – NVE is currently looking into certified Laser Induced Fluorescence drilling contractors. NDEP is generally positive to the use of LIF technology.

Pond 4A/C1/C2 – Solids Removal Work Plans will be submitted to NDEP for review in mid-October. Solids removal activities are planned to begin in 2014.

Community Relations – The NDEP website has been updated that includes copies of the NDEP-approved reports from 2011 and 2012. NVE/Stanley Consultants will send NDEP a new fact sheet.

BLM Land Purchase – NVE recently held a meeting with the Moapa Band of Paiutes and the BLM to address concerns regarding the purchase of WMU-7 and Section 5 areas. BLM was satisfied with the meeting and committed to moving forward on processing the Notice of Reality Action (NORA).

Evaluation of Background Conditions - A Draft Background Report that includes a summary of the background field activities, a statistical evaluation of background soil data, and a discussion of the

aquifer testing results was submitted to NDEP for review on March 28, 2013. NDEP and Arcadis had begun reviewing the report and provided some preliminary feedback. Arcadis suggested leaving Tables 4-1 and 4-4 in the Aquifer Testing section, but remove all quantitative data presented in Tables 4-2 and 4-3. NDEP suggested that Table 5-2 should include all soil permeability data. NDEP and Arcadis commented that NVE/Stanley Consultant's preliminary background soil standards for aluminum, arsenic and magnesium seemed high and selected arsenic as a parameter to further investigate. Arcadis stated that it appeared that there were two distinct populations for arsenic with an inflection point around 20 mg/kg and calculated a background value of 26 mg/kg. They were unable to reproduce Stanley Consultants' statistical results that calculated 90 mg/kg as an arsenic background value and suggested a conference call to discuss specific differences. NVE and NDEP agreed to have a conference call to discuss the statistical analysis before providing final review comments on the soil and aquifer testing portion of the Evaluation of Background Conditions report. This conference call will help alleviate questions regarding the use of possible outliers in calculating background standards and whether the upper confidence limit (UCL) or upper threshold level (UTL) is the appropriate method. This call is tentatively scheduled for the week of 9/9/2013. NDEP requested the excel data from Table D-1 of the report.

Next AOC Meeting – The next quarterly AOC meeting is scheduled for October 16, 2013 and a second meeting is scheduled for December 10, 2013. The time and location will be determined at a later date.

NDEP Action Items from Quarterly AOC Meeting on August 28, 2013

Priority	**Deliverables Already Submitted to NDEP**	**Submittal Date**	**Party Responsible**	**Notes**
	1st Quarter 2013 semi-annual GMR	5-15-13	NDEP/ARCADIS	
	Pond F Solids Removal Completion Report	6-18-13	NDEP/ARCADIS	
	4th Quarter 2012 Background Groundwater Data Validation Reports	4-1-13	NDEP/ARCADIS	
	Pond F Soil Data Validation Reports	4-4-13	NDEP/ARCADIS	
	2nd Quarter 2013 Meeting Minutes	7-31-13	NDEP/ARCADIS	

	Future Submittals and Action Items	**Estimated Delivery Date**	**Party Responsible**	**Notes**
	Background Report (including groundwater)	October 2, 2013	NVE/STANLEY CONSULTANTS	Will also address NDEP comments on soil and aquifer testing sections previously submitted
	Pond 4A and Ponds C1/C2 Solids Removal Work Plans	Mid-October 2013	NVE/STANLEY CONSULTANTS	NVE plans to begin solids removal activities in 2014.
	Petroleum Work Plan to investigate free product	Mid-November 2013	NVE	
	Muddy River Work Plan	Early December 2013	NVE/STANLEY CONSULTANTS	
	Revised Background Report (including groundwater)	Mid-December		
	Work Plan to address area south of Ponds D/E	January 2014	NVE	
	3rd Quarter 2013 semi-annual GMR	1-28-14	NVE/STANLEY CONSULTANTS	

NV Energy – Reid Gardner Station
Implementation of Administrative Order on Consent
Quarterly AOC Meeting
August 28, 2013, 10:00 AM
List of Attendees

Name	Representing	Phone	E-Mail
Alison Oakley	NDEP	775-687-9396	aoakley@ndep.nv.gov
Brad Cross	Arcadis	480-905-9311	brad.cross@arcadis-us.com
John Kivett	Arcadis	702-485-6000	john.kivett@arcadis-us.com
Tony Garcia	NV Energy	702-402-5767	tgarcia@nvenergy.com
Mike Rojo	NV Energy	702-402-1319	mrojo@nvenergy.com
Jason Reed	NV Energy	702-402-5958	jreed@nvenergy.com
Matt Johns	CH2MHill	702-402-5416	matt.johns@ch2m.com
Becky Svatos	Stanley Consultants	319-626-3990	svatosbecky@stanleygroup.com
Africa Espina	Stanley Consultants	602-333-2348	espinaafrica@stanleygroup.com
Jonathan Sarich	Stanley Consultants	702-534-2123	sarichjonathan@stanleygroup.com
Cam Conrad	Stanley Consultants	319-626-3990	conradcam@stanleygroup.com
Todd Knause	Stanley Consultants	319-626-3990	knausetodd@stanleygroup.com